



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 4, April 2023

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com



Classification of Lanzones Weeds Diseases Using Image Processing Technology and a Convolutional of Neural Network

V Parthasaradi¹, L Ramachandran², N Suriya³

Assistant Professor And Head , Department of Electronics and Communication Engineering, E.G.S Pillay Engineering Collage, Nagapattinam, India¹.

Assistant Professor, Department of Electronics and Communication Engineering, E.G.S Pillay Engineering Collage, Nagapattinam, India ².

PG student, Department of Electronics and Communication Engineering, E.G.S Pillay Engineering Collage, Nagapattinam, India ³

ABSTRACT: Agriculture is a vital source of living for humankind. In today's time we are facing various difficulties in agriculture fields. Due to many problems, hurdles and damages the quality of the crop is affected. One such concerning problem is weeds and plant diseases. To overcome this, we need to detect the weeds and treat/remove them. But practically, this job is difficult and time consuming manually, so here we turn towards technology. Implementing machine learning methods such as Convolutional Neural Networks (CNN) on agriculture can help to classify the plants. Then the use of the automatic plant type identification processes could offer a great help for the guidance to the farmers in the use of pesticides, fertilization and harvesting in order to improve the quality and the production processes of crops and plants in the fields.

KEYWORDS: Convolutional Neural Network, Identification, pesticides, Fertilization Harvesting.

I. INTRODUCTION

The health of the crops and plants has been monitored at different levels in the Agriculture Department. Various Crops and their details have been studied as research about the damages caused on them based on their types is done. To get a clear picture on the overall quality of crops, the analysis is done by the different image processing techniques for the vision system which has no human interference and that system used in the agriculture field.

This system gives a clear idea and helps to make proper decisions by the use of the information provided by machine learning techniques, image processing as well as neural networks (classifiers). The system provides the report on observations on disease detection by sensing the Image data which is provided by the image processing techniques. The system gives real time identification of the crops, diseases, weeds

II .OBJECTIVE

This project helps to the Classification of Lanzones weeds Diseases. This project based on two methods. There are Image processing and convolutional of neural network.

III. LITERATURE SURVEY

This project presents a real-time computer vision based crop/weed detection system for variable rate agrochemical spraying. Weed/crop detection and classification were performed through the Random Forest classifier. The classification model was first trained offline with our own created dataset and then deployed in the field for testing. Agrochemical spraying was done through application equipment consisting of a PWM-based fluid flow control system capable of spraying the desired amounts of agrochemical directed by the vision-based feedback system. The results

obtained from several field tests demonstrate the effectiveness of the proposed vision-based agrochemical spraying framework in real-time.

V. METHODOLOGY

In our proposed system, we are working on a system where the crop gets analyzed and identified according to its characteristics and then the major and minor diseases get identified by the disease detection technique by taking the picture uploaded by the user. Then the pest as well as weed is also identified by pattern and measurement of that pattern after the Image Segmentation and Image Pre-processing Methods the NN Classifier get applied on that image. The neural networks learn the pattern by the iteration of K Clusters. This way we can identify the diseases and suggest proper pesticides and also give farmers the proper information of pesticides as well as share the location of best pesticides shops near them.

Image processing: Image processing is a method to perform operations on an image in order to improve it for further analysis. In terms of computer vision, it is called ‘digital image processing’ due to the needed of a digital image to be processed by the computer.

Artificial Intelligence: Deep Learning Artificial Intelligence is an area of computer science that tries to get computers to imitate human-like intelligent behavior, such as reasoning, adapting and self-correcting.

MATLAB (Matrix Laboratory) is a special-purpose computer program optimized to perform engineering and scientific calculations. It is a high-performance language for technical computing. It integrates computation, visualization, and programming in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation.

VI. ADVANTAGES

- Lower power dissipation and generally greater energy efficiency.
- Higher reliability. Easy to use.
- Extremely long life.

VII. APPLICATIONS

- Lower power dissipation and generally greater energy efficiency
- MATLAB has many advantages compared to conventional computer languages for technical problem solving.
- Algorithm development.
- Modeling, simulation and prototyping.
- Data analysis, exploration and visualization.

VIII. FUTURE SCOPE

An unexplored combination of feature extraction, selection and learning methods can also Be used to increase the effectiveness of detection and classification techniques. The future work can also be dedicated to the automatic estimation of severity of the Detected diseases. The instant solutions can be made available to the farmers by designing the mobile based Applications It is also required to increase the number of data for training and testing purposes to Achieve better accuracy.

IX. CONCLUSION

For better production of the crops, the identification of diseases should be very accurate and with the use of machine learning and neural networks we will correctly suggest pesticides which will cure such diseases accurately. It will help farmers by providing proper and accurate information which is needed to them. It will also help agriculture consultants to identify the disease and suggest accurate cure of the disease with detailed information of pesticides in real time. Using this system we have shown real time identification of crop diseases according to their different characteristics and various species.

REFERENCES

[[1] A. Camargo and J.S. Smith, “An image-processing based algorithm to automatically identify plant disease visual symptoms,” Biosystems Engineering, vol.102, pp.9–21, January 2009.



- [2] J.S. Cope, D. Corney, J.Y. Clark, P. Remagnino, and P. Wilkin, "Plant species identification using digital morphometrics: A review," *Expert Systems with Applications*, vol.39, pp.7562–7573, June 2012..
- [3] Dr.K.Thangadurai, K.Padmavathi, "Computer Vision image Enhancement For Plant Leaves Disease Detection", 2014 World Congress on Computing and Communication Technologies.
- [4] Monica Jhuria, Ashwani Kumar, and Rushikesh Borse, "Image Processing For Smart Farming: Detection Of Disease And Fruit Grading", *Proceedings of the 2013 IEEE Second International Conference on Image Information Processing (ICIIP 2013)*.
- [5] K. Oki, S. Mitsuishi, T. Ito, M. Mizoguchi, "An agricultural monitoring system based on the use of remotely sensed imagery and field server web camera data," *Giscience & Remote Sensing*, vol. 46, pp. 305-314, 2009.
- [6] G. F. Zhang, X. D. Liu, Y. Q. Zhu, and B. P. Zhai, "An open WebGIS-based monitoring system on crop pests and diseases," *Journal of Nanjing Agricultural University*, vol. 32, pp. 165-169, 2009.
- [7] Kaur, S.; Pandey, S.; Goel, S. Plants disease identification and classification through leaf images: A survey. *Archives of Computational Methods in Engineering* 2019, 26, 507–530. Boca Raton, FL, USA, 2018.
- [8]. Gebbers, R.; Adamchuk, V.I. Precision agriculture and food security. *Science* 2010, 327, 828–831. [CrossRef] [PubMed]
- [9]. Carvalho, F.P. Agriculture, pesticides, food security and food safety. *Environ. Sci. Policy* 2006, 9, 685–692. [CrossRef]
- [10]. Mohanty, S.P.; Hughes, D.P.; Salathé, M. Using deep learning for image-based plant disease detection. *Front. Plant Sci.* 2016, 7, 1419. [CrossRef] [PubMed]
- [11]. Miller, S.A.; Beed, F.D.; Harmon, C.L. Plant disease diagnostic capabilities and networks. *Annu. Rev. Phytopathol.* 2009, 47, 15–38. [CrossRef]
- [12]. LeCun, Y.; Bengio, Y.; Hinton, G. Deep learning. *Nature* 2015, 521, 436–444. [CrossRef]
- [13]. Najafabadi, M.M.; Villanustre, F.; Khoshgoftaar, T.M.; Seliya, N.; Wald, R.; Muharemagic, E. Deep learning applications and challenges in big data analytics. *J. Big Data* 2015, 2, 1–21. [CrossRef]
- [14]. Szegedy, C.; Liu, W.; Jia, Y.; Sermanet, P.; Reed, S.; Anguelov, D.; Erhan, D.; Vanhoucke, V.; Rabinovich, A. Going deeper with convolutions. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, Boston, MA, USA, 7–12 June 2015; pp. 1–9.
- [15]. Abade, A.; Ferreira, P.A.; de Barros Vidal, F. Plant diseases recognition on images using convolutional neural networks: A systematic review. *Comput. Electron. Agric.* 2021, 185, 106125. [CrossRef]



Impact Factor: 8.423



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details